

ABSTRACT OF THE DISCLOSURE

The invention concerns a method for synthesizing non-photosynthetic carotenoids using photosynthetic bacteria while producing at least one photosynthetic carotenoid of which one of the synthesis intermediates is lycopene. The inventive method is characterized in that it comprises a number of steps: the deletion and insertion of specific genes; the culturing of bacteria, and; the extraction of carotenoids. The invention also concerns the bacteria or mutants used in the aforementioned method.